MATERIALS SCIENCE AND ENGINEERING A VOLUME 162, NUMBERS 1–2, APRIL 30, 1993

Contents

Preface vii

The fracture resistance of metal–ceramic interfaces 1
A. G. Evans and B. J. Dalgleish (Santa Barbara, CA, USA)

Functional interfaces for oxide/oxide composites 15
P. E. D. Morgan and D. B. Marshall (Thousand Oaks, CA, USA)

Fluoromica coated Nicalon fiber reinforced glass–ceramic composites 27
K. Chyung and S. B. Dawes (Corning, NY, USA)

Interface engineering in alumina/glass composites 35
K. K. Chawla (Socorro, NM, USA), M. K. Ferber (Oak Ridge, TN, USA), Z. R. Xu and R. Venkatesh (Socorro, NM, USA)

Carbon-layer formation at silicon-carbide–glass interfaces 45
G. Qi, K. E. Spear and C. G. Pantano (University Park, PA, USA)

Interfacial studies of refractory glass–ceramic-matrix/advanced-SiC-fiber-reinforced composites 53
J. J. Brennan and G. McCarthy (East Hartford, CT, USA)

Creep behavior of an SiC-reinforced XD™ $MoSi_2$ composite 73
M. Suzuki, S. R. Nutt (Providence, RI, USA) and R. M. Aikin, Jr. (Cleveland, OH, USA)

Equilibrium geometries of anisotropic surfaces and interfaces. 83
J. W. Cahn and C. A. Handwerker (Gaithersburg, MD, USA)

The influence of crystallography and oxide and metallic types on the structure and properties of metal–ceramic interfaces 97
J. C. Yang, Y. C. Lu and S. L. Sass (Ithaca, NY, USA)

Interfacial reactions of thin titanium aluminide films with Al_2O_3 films and with sapphire 107
M. Nathan, C. R. Anderson and J. S. Ahearn (Baltimore, MD, USA)

The use of superlattices to probe and control reactions at buried interfaces 115
T. Novet, Z. Xu, S. D. Kevan and D. C. Johnson (Eugene, OR, USA)

Nitridation of niobium alloys: interface effects 123
M. Schmerling, S. Ponnekanti, S. T. Mear, A. Yeoh, F. Chi, M. E. Fine, Z. Eliezer and H. L. Marcus (Austin, TX, USA)

Temperature programmed desorption studies of the copper–sapphire(0001) system 131
Y. Ding, J. Blakely and R. Raj (Ithaca, NY, USA)

Improving mechanical properties of Nextel 610 reinforced Al-224 alloy through θ phase precipitation at the fiber–matrix interface. 135
J. A. Cornie (Pittsburgh, PA, USA), M. L. Seleznev, M. Ralph (Cambridge, MA, USA) and F. A. Armatis, Jr. (St. Paul, MN, USA)

Strength and toughness of carbon fiber reinforced aluminum matrix composites 143
J. B. Friler, A. S. Argon and J. A. Cornie (Cambridge, MA, USA)

Formation of TiC in *in situ* processed composites via solid–gas, solid–liquid and liquid–gas reaction in molten Al–Ti 153
S. Khatri and M. Koczak (Philadelphia, PA, USA)

Interfaces in cast metal–matrix composites 163
P. K. Rohatgi (Milwaukee, WI, USA), S. Ray (Roorkee, India), R. Asthana (Cleveland, OH, USA) and C. S. Narendranath (Milwaukee, WI, USA)

Elastic–plastic analysis of cracks on bimaterial interfaces: interfaces with structure 175
R. J. Asaro (La Jolla, CA, USA), N. P. O'Dowd (Pasadena, CA, USA) and C. F. Shih (Providence, RI, USA)

Determination of interphase properties of fiber composites from phase velocities of ultrasound 193
M. Gosz and J. D. Achenbach (Evanston, IL, USA)

Fracture mechanics of dissimilar materials bonded through an orthotropic interfacial zone 199
F. Erdogan and B. Wu (Bethlehem, PA, USA)

Bis(vinylbenzyl)ether and bis(vinylbenzyl)thioether: synthesis, cure studies and evaluation of carbon fiber composites 215
L. J. Mathias, J. Muthiah and C. C. Roberts (Hattiesburg, MS, USA)

Dynamic nuclear polarization enhanced nuclear magnetic resonance of polymer-blend interfaces 221
M. Afeworki, R. A. McKay and J. Schaefer (St. Louis, MO, USA)

Adsorption of spin labeled polymers on carbon fibers for composite interface studies. 229
A. W. Snow (Washington, DC, USA)

Synthesis and characterization of spin labeled polymers for composite interface studies. 233
A. W. Snow and M. D. Pace (Washington, DC, USA)

Fluorescence characterization of cure and water uptake in polymers and composites 241
C. S. P. Sung (Storrs, CT, USA) and N. H. Sung (Medford, MA, USA)

Effects of water on the interface in a model polymer composite system: a nuclear magnetic resonance study 249
J. E. Gambogi and F. D. Blum (Rolla, MO, USA)

"Inverse" organic–inorganic composite materials: high glass content non-shrinking sol-gel composites 257
B. M. Novak and M. W. Ellsworth (Berkeley, CA, USA)

AUTHOR INDEX 265

SUBJECT INDEX 267